

REMARKS

The Examiner is thanked for the due consideration given the application. The specification has been amended to add headings.

Claims 1-5 and 8-14 are pending in the application. Claims 6 and 7 have been cancelled without prejudice or disclaimer. Support for amended claims 1 and 4 and for new claims 9-14 can be found in paragraphs 0036 and 0045-0050 of corresponding U.S. Publication No. 2006/0227216. Claims 2, 3, 5 and 8 have been amended to improve their language in a non-narrowing fashion.

No new matter is believed to be added to the application by this amendment.

Rejections Based on APRAHAMIAN et al.

Claims 1, 2, 4 and 5 have been rejected under 35 USC §102(b) as being anticipated by APRAHAMIAN et al. (U.S. Patent 6,393,315). Claims 3 and 8 have been rejected under 35 USC §103(a) as being unpatentable over APRAHAMIAN et al. Claims 6 and 7 have been rejected under 35 USC §103(a) as being unpatentable over APRAHAMIAN et al. in view of JUNG et al. (U.S. Patent 5,880,826). These rejections are respectfully traversed.

The present invention pertains to a method or device for detecting and locating the difference in density and/or structure and/or chemical composition of a biological tissue (7)

that is illustrated, by way of example, in Figure 1 of the application, which is reproduced below.

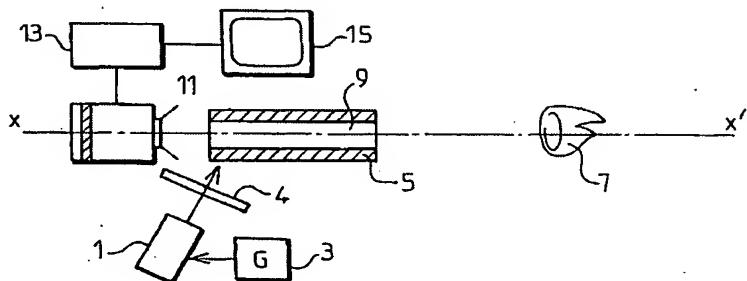


FIG.1

Figure 1 shows a xenon lamp 1 supplied by a current generator 3. The light, which is non-monochrome and supplied by lamp 1, is filtered on leaving the lamp by a filter 4 so as to maintain a radiation band extending from the ultraviolet to the near visible. These light radiations pass through a waveguide tube 5 and continuously illuminate a biological tissue, in this case a patient's tooth 7.

The utilization of a mosaic of pixels of complementary colors permits the enhancement of the primary colors with a better accuracy because it is possible to act on two signals for enhancing the intensity of a primary fluorescence color. This advantage is disclosed in the second part of paragraph 0036 of the corresponding patent publication, and is due to the phenomenon that the range of reaction of these filters is greater than those of the primary colors.

These novel advantages of the present invention are set forth in instant claims 1 and 4, which recite "filters having a greater range of reaction compared to filters of primary

colours," and "acting on signals as received by at least two pixels provided with filters of different colours."

APRAHAMIAN et al. pertain to detecting and mapping of inflamed zones in living tissues using fluorescence characteristics of such tissues. A fluorescent image is obtained as stated in column 3, line 66 to column 4, line 4.

In APRAHAMIAN et al., three fluorescence images are acquired, each for one of three spectral bands corresponding to the fluorescence bands of the different kind of tissues.

APRAHAMIAN et al. fail to disclose a dynamic capture of images in order to obtain a movie. In contrast, the present invention uses a "colour video means," as is set forth in independent claims 1 and 4.

The images acquired by APRAHAMIAN et al. are realized for each point to be measured (column 4, line 43-50). For this purpose, a set of pass-band filters adapted for selecting fluorescences of the different sought chromophores is used (column 6, lines 24-27).

APRAHAMIAN et al. thus fail to disclose or suggest using color video means having a sensor with a mosaic of pixels of complementary colors for acquiring fluorescence images. Furthermore, APRAHAMIAN et al. fail to exploit the property that filters of complementary color have greater ranges of reaction compared with those of the primary colors.

APRAHAMIAN et al. additionally propose to normalize the fluorescence signals in the three spectral bands between each other or with signals received in other spectral bands in order to make them appear together with an optimum gradation of the colors in the final image.

This type of normalization fails to be comparable to an amplification step acting on signals as received by at least two pixels of the mosaic of pixels provided with filters of different colors, such as claimed in the present invention.

APRAHAMIAN et al. thus fail to anticipate independent claims 1 and 4 of the present invention. Claims depending upon claims 1 and 4 are patentable for at least the above reasons.

The Official Action acknowledges that, regarding claims 3 and 8, APRAHAMIAN et al. fail to disclose that radiations are added to the band of frequencies of the illumination spectrum that are able to modify the fluorescence of band of parasite fluorescence. The Official Action asserts that it would have been obvious to modify the fluorescent spectrum.

However, the Official Action fails to point out where in the single reference of APRAHAMIAN et al. itself resides a teaching or suggestion to modify the fluorescence spectrum.

To establish a *prima facie* case of obviousness, "the prior art reference (or references when combined) must teach or suggest all the claim limitations." MPEP §2143. In addition, if a reference needs to be modified to achieve the claimed invention

"there must be a showing of a suggestion or motivation to modify the teachings of that reference to the claimed invention in order to support the obviousness conclusion." *Sibia Neurosciences Inc. v. Cadus Pharmaceutical Corp.*, 225 F.3d 1349, 55 USPQ2d 1927 (Fed. Cir. 2000).

And even if one assumes *arguendo* that APRAHAMIAN et al. are sufficient to infer claims 3 and 8, this inference of APRAHAMIAN et al. is insufficient to rectify the failure of APRAHAMIAN et al. in anticipating independent claims 1 and 4 of the present invention.

A *prima facie* case of unpatentability has thus not been made.

The cancellation of claims 6 and 7 moot the rejection of APRAHAMIAN et al. in view of JUNG et al.

These rejections are believed to be overcome, and withdrawal thereof is respectfully requested.

Conclusion

The Examiner is thanked for considering the Information Disclosure Statement filed January 23, 2006 and for making an initialed PTO-1449 Form of record in the application.

Prior art of record but not utilized is believed to be non-pertinent to the instant claims.

The rejections are believed to have been overcome, obviated or rendered moot, and that no issues remain. The Examiner is accordingly respectfully requested to place the

application in condition for allowance and to issue a Notice of Allowability.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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